fore wings with a blackish longitudinal shade covering the lower half of the wing; hind wings with an indistinct diffused discal fascia of same colour.

Expanse of wings $1\frac{5}{10}$ inch.

162. Badamia exclamationis.

Pap. exclamationis, Fabr. Syst. Ent. p. 530 (1775).

♀ *Pap. ladon*, Cramer, Pap. Exot. iii. pl. 284. fig. C (1782).

Poona, April, May, and June; Belgaum, September; Mahableshwur, May; Matheran, May; Bombay, July, August, September.

163. Parata alexis.

Pap. alexis, Fabr. Syst. Ent. p. 533 (1775).

Poona, May, June, November, December; Bombay, July, August, and September.

164. Gangara thyrsis.

Pap. thyrsis, Fabr. Syst. Ent. p. 532 (1775).

Bombay, August to December. Very common just before dark.

EXPLANATION OF PLATE IX.

Fig. 1. *Hiposcritia shiva*, ♂, n. sp., p. 138.
2. —— ——, ♀.
3. *Ixias jhoda*, ♂, n. sp., p. 142.
4. —— ——, ♀.
5. —— *meridionalis*, ♀, n. sp., p. 140.
6. —— *colaba*, ♂, n. sp., p. 141.
7. *Megisba gunga*, n. sp., p. 133.
8. *Catochrysops theseus*, ♂, n. sp., p. 131.
9. *Isoteinon flexilis* (upper side), n. sp., p. 147.
10. —— —— (underside).
11. *Zizera ossa*, ♂, n. sp., p. 132.
12. —— ——, ♀.
13. *Ixias cumballa*, ♂, n. sp., p. 141.
14. —— ——, ♀.

3. On *Echidna acanthion* from Northern Queensland. By Robert Collett, C.M.Z.S.

[Received January 13, 1885.]

(Plate X.)

We have in the course of late years several times been informed that the genus *Echidna* extends into Queensland. But although a considerable number of specimens have been obtained from that part of Australia, and several of them have found their way to Europe, still no satisfactory examination of their specific characters as compared with those of the other species has, so far as I know, ever been published.

Thus in Dr. Bennett's interesting paper on *Ornithorhynchus* and their burrows (Proc. Zool. Soc. Lond. 1877, p. 161) it is mentioned that the *Echidna* is very numerous in the Gomarry scrubs, Merugaden;

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ECHIDNA ACANTHION

and in a later article (1881, p. 737) a similar statement is made as regards the district of Toowoomba, not far from Brisbane (27½° S. lat.) by Mr. George Bennett, his son. Moreover, Mr. Macleay says in an article in Proc. Linn. Soc. New South Wales, 1884, vol. viii. p. 425, that he has had the *Echidna* in confinement from the district of Brisbane. Thus it is evident that the *Echidna* is a well-known animal in that part of Queensland.

In all these papers the said species is entered under the name of *E. hystrix*, i. e. *aculeata*, and, moreover, as several of the specimens collected have been examined in London by Prof. Owen and others, there seems no reason to doubt that they really belong to this well-known South-Australian species.

In June 1878, again, Capt. Armit mentions in the Journ. Linn. Soc. New South Wales, vol. xiv. p. 411, that North Queensland is also inhabited by the *Echidna*, which he found numerous at Georgetown, 200 miles west of Cardwell, and he states that it is met with at least up to 18° S. lat., and according to his opinion also will be found on the Leichhardt ranges and throughout the length and breadth of the Cape-York peninsula.

Capt. Armit gives us no definite information as to the species to which he refers the *Echidna* of the Cardwell district, nor does he furnish any description of it. But he sent to the Linnean Society in London a dried skull to which, according to Dr. Murie, the following label was attached :—"Head of *Tachyglossus* (*hystrix*?), ♀, killed near Georgetown in 18° S. lat. Nov. 1876."

This skull has been examined by Dr. Murie and described in the Journ. Linn. Soc. vol. xiv. p. 413, where he concludes his researches with the following words :—"In conclusion I would state that, from the data which have come under my observation, we cannot regard Capt. Armit's animal found in Queensland as offering any distinction from the wide-spread *Echidna hystrix*."

As mentioned before, there seems to be no reason to doubt that the *Echidna* that occurs in the district of Brisbane really belongs to *E. aculeata*, which thus extends from the most southern part of Australia at least as far north as the 27½° S. lat. in South Queensland.

On the other hand, it is highly improbable that Capt. Armit's specimens from North Queensland could have been identical with the said species, although Dr. Murie has with the greatest accuracy compared the skull mentioned above with five skulls of the species from South Australia and Tasmania, without being able to find any specific distinction between them. It will be shown by the following that Dr. Murie has given at least one brief character (without attributing much importance to it, on account of the insufficient materials), which has, however, proved to be constant for the species :—"The female Queensland skull .... is barely appreciably narrower across the cerebral area, but decidedly lower in the same region."

Amongst the interesting collection of mammals brought home to the Museum of the University of Christiania by Dr. Lumholtz

from Central and North Queensland in the years 1881–84[1], there were nine specimens of the North-Queensland *Echidna*, all of them collected in the district west of Rockhampton, under 23° S. lat.

I shall endeavour now to give some remarks on these specimens. In my opinion there can be no doubt of their being different from *E. aculeata*; and as they also seem to differ from *E. lawesi*, Rams., from New Guinea, described in March 1877 (Proc. Linn. Soc. New South Wales, vol. ii. p. 30), a species still only imperfectly known, but to which they are, at any rate, very nearly related, I have thought it best to give the North Queensland *Echidna* a special name; and at the last meeting of the Scientific Society of Christiania (Dec. 14, 1884), I communicated its diagnosis and a brief description of it under the name of *E. acanthion*.

ECHIDNA ACANTHION, Coll. 1884.

Tachyglossus, sp. inc., Armit, Journ. Linn. Soc. vol. xiv. (Zoology), p. 411 (Cardwell district), 1878.

Echidna hystrix, Murie, Journ. Linn. Soc. vol. xiv. (Zoology), p. 413 (Cardwell district), 1878.

Tachyglossus lawesi, Ltk. Proc. Zool. Soc. Lond. 1884, p. 150 (unknown locality).

Echidna acanthion, Collett, Forh. Vid. Selsk. Christ. 1884, no. 13, pp. 1–12 (Rockhampton district), 1884.

Diagn. Snout of moderate length, or rather short, slightly bent upwards, and to the length of the skull as 1 to 2–2¼.

The skull, which is to the total length as 1 to about 4, is broadest below, and more or less narrower towards the *parietalia*. The breadth is to the length of the skull as 1 to 2·5.

The dorsal spines are powerful and closely set, of unequal size; whitish yellow with black tips; some, which are longer than the others, form irregular rows along the back, the rest being shorter, with the black tip broader; they begin midway between eye and ear, and extend on the sides a little beyond the margin of the belly. Flattish bristles, intermingled with hairs, cover the front, the fore feet, and the belly. Breast and throat covered with hairs. The hairs on the back very short and scarce.

The soft parts of the body brownish black, sometimes with a clearer tint on the fore limbs; in a young male the throat was yellowish brown.

The second claw on the hind foot is very long, the third short and slender, being scarcely half the length of the second.

Total length about 450 millim.

Locality. Dr. Lumholtz informs me that he found this species fairly well distributed over the eastern part of Central Queensland. In the coast-range near Herbert river in North Queensland (18° S. lat.) it was also common; it occurs here in the ranges covered with dense scrubs. It is called "Gombian" by the natives, and is tracked by the tamed dingoes, and it is considered here, as everywhere else, a great delicacy by reason of its fatness.

[1] *Vide* Proc. Zool. Soc. 1884, p. 381 (and p. 406).

E. acanthion is no doubt distributed over the whole of Central Queensland, at least in the eastern parts of that district, and in North Queensland as far up as to 18° S. lat.; but it also occurs, according to Capt. Armit's supposition, over the whole of Cape York peninsula.

Thus the remarkable genus *Echidna* extends from Tasmania (*E. setosa*, Cuv.), throughout the whole eastern part of Australia, from Victoria and New South Wales to South Queensland, occurring also in West Australia (*E. aculeata*, Shaw), and through Central and North Queensland up to Torres Strait (*E. acanthion*); furthermore it occurs in the south-eastern part of New Guinea (*E. lawesi*, Rams.). Besides these, the northern parts of New Guinea is inhabited by a fifth species, the rather aberrant form *Proechidna bruijni* (Peters and Doria)[1]. *E. acanthion* is much nearer related to the *E. lawesi* from New Guinea, than it is to the South-Australian *E. aculeata*.

Specimens examined.—The specimens collected by Dr. Lumholtz, and preserved in the University Museum of Christiania, are the following[2]:—

		Total length.
1.	♂ jun.	365 millim.
2.	♀	425 „
3.	♂	448 „
4.	?	420 „
5.	♂	415 „
6.	♀	443 „
7.	♀	about 410 „
8.	♀	about 405 „
9.	♀	448 „

No. 1 is a young male, caught at Gracemere near Rockhampton in July 1881. The others were caught at Coomooboolaroo, 80 miles W. of Rockhampton; Nos. 2-8 in February 1884; No. 9, a female with fully developed mammæ, in the beginning of March the same year.

Sex. Of the nine specimens, three are males, five females; in one specimen (No. 4) of which the skeleton only is preserved, the sex cannot with certainty be decided, but it would seem to have been a female.

I cannot detect any character by which the sexes can be distinguished externally, with the exception of the sharp, but short spur on the inside of the hind heel of the male; this spur has already appeared in the young male (No. 1), the skeleton of which is far from being perfectly ossified.

As to the skull it may be noted that the male (No. 5) has a proportionally shorter snout than the female (No. 9), but its skull is, on the other hand, broader and higher behind (*cf.* figs. 3 & 4,

[1] *Tachyglossus bruijnii*, Peters and Doria, 1876; *Acanthoglossus bruijnii*, P. Gervais, 1877; *Proechidna bruijnii*, Murie, 1878; and *Bruijnia tridactyla*, Dubois, 1872.

[2] At present there are stuffed specimens of the following:—No. 1, No. 5, and No. 9; and mounted skeletons of No. 1, No. 2, and No. 3.

p. 155). How far this fact is the rule, or whether it is attributable to the younger age of the male, can only be ascertained on the examination of more abundant materials.

Size.—The largest specimens are a male and a female with a total length of 448 millim. each, and these appear to be full-grown. The second male (No. 5) is younger, with a total length of 415 millim., and the skeleton showed that it was not yet full-grown. The third male (No. 1) was young. The females have a total length of 405 to about 440 millim.

The greater number of the specimens have thus a length of more than 16, but not quite 18 inches, which may perhaps be considered to be the normal size, as the generative organs of one of the females, which have been preserved, showed the specimen to be fully developed.

It is, however, probable that *E. acanthion* attains a still larger size, as it can be seen by comparison of two skeletons of the same size of *E. acanthion* and *E. aculeata* (total length 425 mm.) that the last species is already in every respect fully ossified without a trace of the open sutures, while in *E. acanthion*, on the other hand, there are still some traces of these earlier stages. It may therefore be concluded, that perhaps the North-Queensland species attains still larger dimensions than *E. aculeata* [1].

The Covering of the Skin.—The dorsal spines are long and powerful, closely placed, and perfectly hiding the scarce and short fur at their bases. A number of spines are stronger than the others, and are regularly distributed over the back, making it almost possible to arrange them here in three to four irregular series; they are also distinguishable from the others by the clearer colour of their exposed parts. These strong spines reach a length on the back of 43–47 millim., on the tail sometimes of 55 millim.; their diameter is $3\frac{1}{2}$ millim.

The other spines, which are far the greatest in number, are shorter and finer, have a length of about 22–30 millim., sometimes a little more, but are distinguishable by their darker colours. Their diameter rarely exceeds 2–$2\frac{1}{2}$ millim.

This spiny covering extends forward to beyond the ear, on the sides of the body as far as to the margin of the belly; one or two spines may sometimes reach beyond the margin, but the rule is that the belly is only covered with hairs.

The fur at the root of the spines is, as mentioned above, very scarce and short, and it is only a rare exception that the tips of one or two hairs are visible between the spines, as in the young male (No. 1). The forehead and throat are covered with flattish bristles, mingled with a few normal hairs, which commence in front of the eye; these bristles gradually merge behind into short spines, which successively become stronger; still on the occiput and the nape they are somewhat shorter than those on the back. The legs are covered with similar flattish bristles, particularly on their outer

[1] Of this latter species there is preserved in the University Museum of Christiania a mounted specimen with a total length of about 470 to 480 millim.

side, yet here mixed with normal hairs. At the hind margin of the ear is found a thick patch of blackish hairs, as in the other species. The belly is covered with hairs, longer or shorter, mixed with flattish bristles; on the breast and lower side of the head there are, as a rule, no bristles, but hairs only.

Colour.—The dorsal spines are pale yellowish with black tips; this black tip is very short in the longer spines, but broader in the shorter ones, by which the longer get a clearer appearance than the rest. In some specimens (but not in all) one or two of these spines are entirely yellowish without black tips. In the shorter spines the pale colour at their bases is almost hidden by the black. Thus, contrary to *E. aculeata*, where all spines are equally coloured (yellowish with short black tips), and almost of the same length, *E. acanthion* at a distance appears to be blackish with irregular series of long and clearer-coloured spines. On the nape and the front the spines are sometimes entirely black, sometimes yellowish, or particoloured.

One of the specimens (No. 9) differs a little from the rest, the longer spines here being almost black, like the shorter. This specimen, a full-grown female, therefore appears to be blackish with a few yellowish spots.

The colour of the belly is blackish brown, under the tail perfectly black; in some specimens a paler line may be observed on the outer side of the legs.

The young male (No. 1) is somewhat different from the rest, the breast and throat being reddish brown, which colour also extends itself along the inner side of the fore limbs, and can be traced also on the hind limbs. An irregular black band crosses the throat from the lower side of the ears. The belly is blackish brown, as in the other specimens, and mixed with one or two yellowish spines.

Skeleton.—In the young male, with a total length of 365 millim., the skeleton is very far from being perfectly ossified. A large fontanelle is found on the upper part of the *os temporale*; in many of the bones the different epiphyses are not yet grown together. There are open sutures between the occipitals, and between the *costæ cervicales* and their vertebræ; the *caput femoris* is separate; the sacral vertebræ are all separate, as well as the bones of the pelvis. On the dorsal vertebræ the spinous processes are very cartilaginous; the same is the case with the upper margin of the *scapula*, of the *proc. olecranoides* in the *fibula*, and at the ends of other bones. The *os coracoideum* is separate. On the lower jaw the *proc. coronoideus ext.* is still not developed.

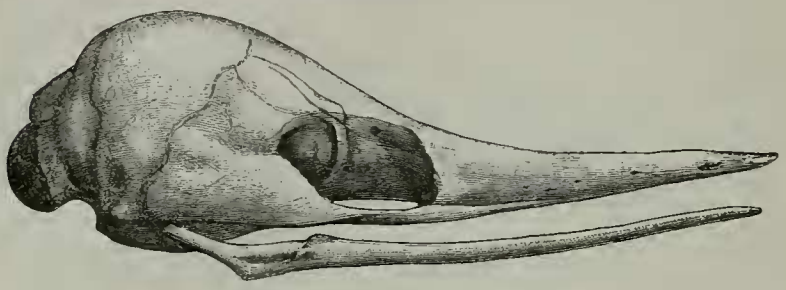
In an apparently almost full-grown female, with a total length of 425 millim., the sutures are still open around the *os basioccipitale*, and the *costæ cervic.* of the *epistrophæus* can still be separated when slightly pressed, and the epiphyses both on the *ulna* and *radius* and on the *fibula* and *tibia* may be easily parted [1].

[1] As mentioned above, all these parts are perfectly ossified in a specimen of *E. aculeata* of the same size.

In a male specimen, with a total length of 448 millim., the skeleton is perfectly ossified.

The skull is very much like that of *E. aculeata*, but may probably always be distinguished by its narrower cerebral area and propor-

Fig. 1.

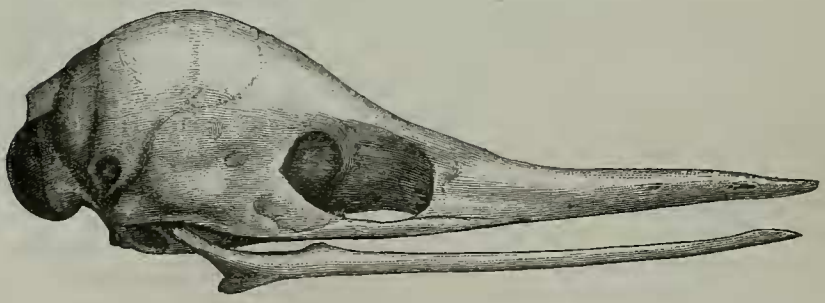


Skull of *Echidna acanthion*, ♂. No. 5.

tionally short snout, although scarcely different in this respect from the South-Australian and Tasmanian species. The length of the skull in proportion to the total length of the skeleton is as 1 to 4 (3·93 to 4·26).

When the skull is seen from behind, the lateral profile, especially in the somewhat younger specimens, widens regularly downwards, the *os squamosum* having its greatest height below, and the upper part of *os temporale* (*perioticum*) diminishes regularly towards the *parietalia*. The greatest breadth, which is to the length as 1 to 2·5,

Fig. 2.



Skull of *Echidna acanthion*, ♀. No. 9.

is therefore in *E. acanthion* situated at the bottom of the skull, quite near the glenoid fossa.

In the perfectly full-grown specimens (male and female) the skull becomes less narrow upwards, but in all cases does not widen as in

E. aculeata. In these specimens the *crista sagittalis* is also sharp and longer, whereas only a trace of it may be observed in the younger skulls.

The snout is of moderate length or rather short. In the full-grown specimen its proportion to the length of the skull is as 1 to $2\frac{1}{4}$, as will be seen by the list below, and in several specimens it is but a little longer than the breadth of the skull[1].

Measurements.

	Sex.	Total length.	Length of skull.	Length of snout.	Breadth of skull.	Proportion of snout to the skull.
		millim.	millim.	millim.	millim.	
2.	♀...	425	108	51	43	2·11
3.	♂...	448	105	47	44	2·23
4.	...	420	103	46	43	2·23
5.	♂...	415	104	46	42	2·26
6.	♀...	443	110	52	45	2·11
7.	♀...	(c) 410	103	47	42	(c) 2·19
8	♀...	(c) 405	101	46	40	(c) 2·19
9.	♀...	448	111	53	44	2·09

In the full-grown specimens the snout is more or less distinctly turned upwards, the profile of the front being deeply concave over the orbits, and down along the *nasalia*, and the lower margin of the skull rises obliquely in front of the orbits. Thus the skull forms a distinct contrast to that of *Proechidna bruijni* from New Guinea;

Fig. 3.

Fig. 4.

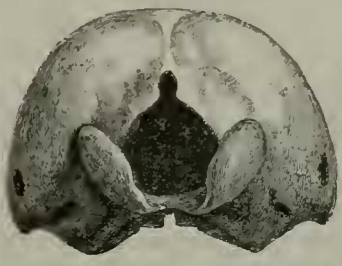


Fig. 3. Skull of *Echidna acanthion*, ♀ (back view). No. 9.
Fig. 4. Skull of *Echidna acanthion*, ♂ (back view). No. 5.

probably the other Papuan species, *E. lawesi*, has a similar concave snout to *E. acanthion*. The palate is armed with about nine rows

[1] The snout is measured without the cutaneous covering, from the *foramen lacrymale* in the skeleton, or the foremost margin of the eye in the skin.

of retroverted spines, the number of which varies in the different specimens; as a rule the hinder and middlemost rows, which are the longest, have 15 to 20 of these spines. They are very short and sharp.

In the young male (No. 8) the skull is not yet full-grown; the snout is remarkably short, even shorter than the breadth of the skull [1]. The snout is not bent up, but perfectly straight, the profile of the frontals not being concave over the orbits; but a faint concavity can be traced beyond the middle of the *nasalia*.

The snout is proportionally broad in this specimen; the breadth of the *ossa nasalia* on their frontal end measuring together 16 millim.; in the full-grown specimen the breadth is about 10–11 millim.

Vertebræ.—The number of vertebræ was as follows:—cervical vertebræ 7, dorsal vertebræ 16, lumbar vertebræ 3, sacral vertebræ 3, caudal vertebræ 13–14 (where the latter have been complete). In two specimens, a female with a total length of 425 millim. (No. 2), and a male with a total length of 448 millim. (No. 3), the last dorsal vertebra had no trace of ribs, and thus there were 15 dorsal and 4 lumbar vertebræ. All the vertebræ were more slender than in specimens of *E. aculeata* of the same size.

The Limbs.—The exact measurements of the bones of fore and hind limbs are as follows:—

	No. 5, ♂. Total length 415 millim.	No. 4. Total length 420 millim.	No. 2, ♀. Total length 425 millim.	No. 3, ♂. Total length 448 millim.	No. 9, ♀. Total length 448 millim.
	millim.	millim.	millim.	millim.	millim.
Humerus[2]	42	42	45	42	46
Ulna ...	62	62	67	67	67
Radius ...	48	48	50	52	53
Femur ...	54	52	57	55	57
Tibia ...	51	52	56	55	57
Fibula ...	57	59	62	62	60

The *ossa marsupialia* have about the same length as the humerus.

The claws are no doubt of precisely the same construction as in the Papuan *E. lawesi*. The second claw is very long, strong, and curved, with a length of 35–36 millim., or even 38 millim., whereas the third claw is much slenderer and is scarcely half the size of the second; its length is 15–16 millim., and it is but a little longer than the fourth and fifth, which are the shortest.

[1] Length of the skeleton 365 millim.; length of the skull 93 millim.; of the snout 41 millim.; breadth of the skull 43 millim.; proportion of the snout to the skull 2·02.

[2] Measured from the articulations.

The Ovaries and Mammæ.—In the paper of Mr. George Bennett previously alluded to (Proc. Zool. Soc. Lond. 1881, p. 737) it is stated that he found impregnated specimens of the South-Queensland species (*E. aculeata*) on the 30th August and the 14th September, and that, according to his view, the young will be found in the uterus in the course of September or October in this part of Queensland (the Brisbane district), although he acknowledges that he does not "think it can be fixed at any certain period, but must in some places begin earlier than in others."

The specimens from Central Queensland collected by Dr. Lumholtz were caught in February or March (with exception of the young male, which was caught in July), and thus the generative organs may be presumed to have been in a dormant state. This, however, seems not to have been the case; and it is probable that *E. acanthion* produces its young at a different (earlier) season from the southern *E. aculeata*.

Dr. Lumholtz informs me that, according to the statements of both the white men and the natives, *E. acanthion* breeds in the winter time, as a rule in the month of May. One pair of ovaries and one pair of mammæ were preserved and brought home by him. The first were taken from a full-grown specimen (No. 9) in the beginning of March, and are considerably developed, although not containing at the time mature eggs. The mammary glands, which were, as far as Dr. L. remembers, taken from the same specimen, were on the other hand large and swollen and contained quantities of milk which profusely flowed out on a slight pressure.

The two ovaries were of about the same size, the right, however, being a trifle smaller. Both were equally developed and showed on their upper surface a number of ovisacs which appeared as shining hemispheres in the stroma without being stretched in any pedicle. The number of these ovisacs was in the right ovary six, all of about the same size with a diameter of $3\frac{1}{2}$ millim., besides four to five smaller or very small. On the left there were 13 larger ovisacs, with a diameter of 4 millim., and two to three smaller ones.

The two *uteri* were about equally developed on both sides, but here also the left was a trifle larger. Both were at the time strongly contracted and empty; the diameter from the outer walls was 7 millim. On the right uterus the *peritoneum* with *tunica propria* was straitened a little above the middle, so that the upper part appeared as a rather twisted enlargement (8 millim.). The inner layer of the uterine wall had a thickness of $3\frac{1}{2}$ millim.

The length of the right *uterus* was 24 millim., of the left 29 millim.

The common *vestibulum* was very wide, and filled with crushed parts of insects.

The *vesica urinaria* was very muscular.

As mentioned above, the two mammary glands contained quantities of milk and appeared to have been in full action. They were oblong or kidney-formed and rather compressed; they were shaped as if folded together a little above the middle, and covered with a thin

membranous tissue. One (the left?) was the larger, and had a length of about 57 millim., a breadth of 40 millim.; its greatest thickness (at the outlet of the lacteal ducts) was 22 millim. The other was a little smaller.

The "mammary areola" was visible on the belly as a flattish spot. No trace of a pouch could with certainty be distinguished (in the single mounted female specimen).

In the mounted full-grown male was visible on each side of the belly (where the mammary areola is found in the female) a small vortex of hairs, apparently an indication of the rudimentary *mammæ* of the males of other mammals.

Parasites.—In two specimens I found half a dozen individuals of an *Ixodes*, attached between the hairs at the root of the dorsal spines or in the ear-tuft.

Comparison with E. aculeata.—Whilst *E. acanthion* will be easily distinguishable from *E. aculeata* by its external characters, the skeletons of both species are more difficult to distinguish. Yet, compared with a skeleton of *E. aculeata* of the same size, that of *E. acanthion* will be seen to be decidedly slenderer.

Thus when the skeleton No. 3, with a total length of 448 millim., is laid side by side with a skeleton of *E. aculeata*, the total length of which is 450 millim., all the vertebræ from the head to the pelvis show themselves as perceptibly narrower and weaker; whilst the breadth of the penultimate lumbar vertebra in *E. aculeata* was 20 millim., the same vertebra in *E. acanthion* was only $16\frac{1}{2}$ millim. broad.

The *processus spinosi* of the first dorsal vertebra did not (yet) show any trace of being notched in *E. acanthion*, whilst the notches were distinct in the other species.

The *humerus* is weaker and narrower. The breadth between *epicondylus medialis* and *lateralis* (*i. e.* the greatest breadth on the ulnar side) is in *E. aculeata* 47 millim., in *E. acanthion* 41 millim. only; the breadth between *trochanter medialis* and *lateralis* (*i. e.* the greatest breadth on the scapular side) is 31 millim. in *E. aculeata*, and 27 millim. in *E. acanthion*.

The *scapula* is shorter and is more straight. Its greatest length (to the articulation with *humerus*) in *E. aculeata* is 56 millim., in *E. acanthion* 51 millim.; in the latter species the *margo superior* is almost straight, but more bent outwards in *E. aculeata*.

The *ribs* are not narrower in *E. acanthion* than in the other species; but the *pelvis* is decidedly weaker. Whilst thus the length from the upper end of *os ilii* to the hinder end of *os ischii* (*i. e.* the greatest length of the pelvis) in *E. aculeata* was 66 millim., the same distance in *E. acanthion* was 60 millim. only; and whilst the greatest breadth (between the upper ends of *ossa ilii*) in *E. aculeata* was 44 millim., the same in *E. acanthion* is 41 millim. Also the *foramen obturatorium* was the larger in *E. aculeata*.

The *femur* is shorter; in *E. aculeata* its length is 59 millim., in *E. acanthion* 53 millim. Any difference in the length of the

other bones of the limbs can scarcely be shown to exist, but all are perceptibly stronger in *E. aculeata*.

As mentioned above, *E. acanthion* is furthermore distinguishable from *E. aculeata* (and *setosa*) by the claws of the hind foot, the third claw reaching hardly the half of the length of the second, whilst in the other species these claws are of nearly the same length. A corresponding difference in the strength of the respective phalanges may be observed.

Finally, with regard to the skull it has been already stated that in most respects it agrees almost perfectly with that of *E. aculeata*. Certainly the length is a little greater in the latter species (116 millim.) than in *E. acanthion* (111 millim.); this, however, may perhaps not always be the case.

The shape of the skull, as seen from behind, appears to be to a certain degree varying in both species; but *E. acanthion* seems constantly to have a narrower cerebral area than *E. aculeata*. As mentioned above, Dr. Murie has described in the Journ. of Linn. Soc. vol. xiv. (p. 413) a skull of the species, found by Capt. Armit at Cardwell, thus not far from the York peninsula. In his comparison of the skull with five skulls of *Echidnæ* from S. Australia and Tasmania, he states that it is "barely appreciably narrower across the cerebral area, but decidedly lower in the same region." This feature is characteristic in all the examined skulls of *E. acanthion*, and is still more perceptible in the younger specimens than in the full-grown.

Thus the greatest breadth of the skull is below the *foramen retro-temporale*, whilst the part above gradually decreases upwards; in the full-grown specimens (No. 3 and No. 9) this decrease is less marked, but the skull is never broader above the said *foramen* than below, as in *E. aculeata*. In the latter species the *os temporale* widens upwards (in the two skeletons preserved in the University Museum of Christiania), and the greatest breadth of the skull is therefore immediately above the foramen *retro-temporale*, not below it. Finally, the snout is straight in *E. aculeata* (in the specimens before me), but in all specimens of *E. acanthion* more or less bent upwards.

Comparison with E. lawesi.—In March 1877 Mr. E. P. Ramsay, in Proc. Linn. Soc. New South Wales (vol. ii. p. 30), described an Echidna under the name of *Tachyglossus lawesi* from a specimen just received from Port Moresby in New Guinea.

The type specimen was a skin of a male, which Ramsay considered to be full-grown; its length from the snout to the tip of tail was 13·4 inches, or about 336 millim.

In Sept. 1878 Mr. Ramsay gave a short communication in the same Journal (vol. iii. p. 244) on three more specimens, also from the S.E. coast of N. Guinea. The new specimens consisted also in the dried skins only, and the measurements given in the same place may therefore also be considered as but approximative. The largest specimen had a length of 16 inches from snout to root of tail, and when the length of the tail is added, the total length has been about